

國立屏東大學 106 學年度日間學士班轉學考試

微積分 試題

(資訊工程學系學士班)

*注意事項：

- (1) 本試題共 1 頁。
- (2) 不必抄題，但請依序將題號標出，並寫在答案紙上，否則不予計分。

一、計算題：共 10 題，每題 10 分。請詳細作答，否則不計分。

1. $\int_0^2 |2x - 1| dx = ?$

2. Find the derivative of $y = \frac{(2x-1)^3}{\sqrt{3x+1}}$.

3. Find $\int \sec x dx = ?$

4. $\int \sin^3 x \cos x dx = ?$

5. Find the area of region between the graphs of $y = x^2 + 2$ and $y = x - 1$ and the vertical lines $x = -1$ and $x = 2$.

6. Find the derivative of $f(x) = \tan^{-1}(\sqrt{(2x+3)})$

7. $\int \frac{1}{x\sqrt{x^4-16}} dx = ?$

8. Find $\frac{dy}{dx}$ if $y = \tan^3(3x^2 + 1)$.

9. Find the Maclaurin series of $f(x) = \cos x$.

10. Suppose z is a differentiable function of x and y that is defined implicitly by the $x^2 + y^3 - z + 2yz^2 = 1$, please find the $\partial z / \partial x$.